

BARG Newsletter



Ballarat Amateur Radio Group Inc. #6953T
January 2024 Monthly Newsletter

Ballarat Amateur Radio Group Inc. (BARG)

HAMVENTION

Sunday February 4 2024

Enquiries and up to date details: BARG on the web www.barg.org.au



Next Meeting General BARG inc
11:00am, Saturday 27th January 2024

At the Airport - All Welcome

Contacting us

BARG@BARG.ORG.AU

We're on the web.

www.barg.org.au

https://twitter.com/vk3_barg

<https://www.facebook.com/groups/VK3BML/>

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Times and dates of nets as below

Club Nets: VHF NET: Every Tuesday Night at 8 pm on 146.750 MHz - VK3RBA

HF NET: Every Thursday Night at 8 pm on 3.608 MHz - VK3BML

6m NET: Every Tuesday Night at 8:30 pm on 53.650Mhz RX / 52.650Mhz TX - FM with a 91.5 tone - VK3RWU

LINKED REPEATERS: The local VK3RBA-70cm repeater on Mt Buninyong is part of a network of linked repeaters covering North-Western Victoria.

Access details for this repeater have recently changed.

For full details of this linked network and access details see <https://www.grz.com/lookup/vk3rba>

You can listen to the system live <http://vk3rba.dyndns.org:441/>

This linked system may be accessed via IRLP node 9503.

BARG inc. OFFICE BEARERS

President	Ben Daniel VK3NRD	Ordinary Member	Tom George VK3DMK
Vice President	Colin Consiglio VK3NCC	Ordinary Member	Colin Consiglio VK3NCC
Secretary	Peter Westgarth VK3APW	Ordinary Member	Doug Ellery VK3DRE
Treasurer	Chris Huggins VK3QY	Ordinary Member	David Martin VK3KQT
Ordinary Member	Craig Cook VK3KG	Ordinary Member	Lachlan Macdonald VK3ALM
Ordinary Member	Ian Fairweather VK3YFD	Ordinary Member	Mal White VK3OAK



President's Report January 2024



Happy new year.

Hamvention preparations are now in full swing with only three weeks to go and tables are filling fast now.

There are some new names on the traders list for this year and we seem to be lacking some of the regulars or they have not booked yet.

So that brings me to get you all to play reminder to anyone you know that may be going to book a table and has not yet. They need to get in soon and really soon if they want to be sited next to another trader the cut off date and time for wanting to be next to another trader is the 27th January at 3pm after this time there will be no requests to be next to another trader being processed and the next table in line will be given.

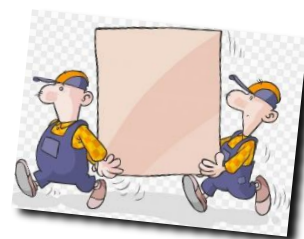
Club Table at Hamvention- Any member wishing to have items on the club table will need to get the details of them to me by the 27th of January so that we can make up the sales database. We will not have much space this year as today 20th Jan there were 2 lots of donation items picked up for the table.

There was a small load of items I don't know much about and a large load that I can tell you it took my car, Colin's VK3NCC ute and trailer, and the property owners' car to bring it all into Ballarat and there may be more to still come from that one.

The usual commission applies if selling on consignment.

Setup the day before on the 3rd of February we need anyone who can assist from 2pm at the clubrooms first more on this later via email and at the next general meeting on the 27th of January at 11am.

That's all, I need to get this report to the editor as I am running late again.
73's Ben VK3NRD



The Next BARG General Meeting

11:00am, Saturday January 27th 2024



BARG Hamvention 2024



Ballarat Amateur Radio Group Inc. (BARG)

HAMVENTION

Sunday February 4 2024

At the Ballarat Polo-Crosse Club's Facility,
Ballarat Airport

Display and Sales (setup from 8am on the day)

Trade Table \$20.00 includes one admission,
(Space for 70+ tables, this is the big one!)

General Admission \$ 7.00 (accompanied under 15 free)

STRICTLY 10:00 AM START

Food and drink will be available on the premises

Enquiries and up to date details: BARG on the web www.barg.org.au



Bookings can be made at the BARG Web Site. <https://www.barg.org.au/>



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[*Members Area*](#)



Welcome to our home page

! News FLASH !

[Hamvention 2024 Information and booking form open](#)

! News FLASH !

Come Along to the BARG Coffee Mornings

Excellent turnout to the weekly club activity for the start of 2024.



Every Thursday at 10 am
Food Seduction on Doveton
524 Doveton St Nth Soldiers Hill
(The old Gove Bike Shop)

The Ultimate Fox Hunt Vehicle

Contributor Rick VK3FIVE



Robert VK3ARM and a Pleasant POTA

Contributor Robert, VK3ARM

I headed out on Sunday 14th January, hoping to activate three local parks, one a bit down the Grampians Road from Stawell where I'd been last year with Mal and two located off the road between Pomonal and Moyston. As it turned out I had to abandon my second choice as I very nearly bogged trying to get into it.



I managed 12 contacts in the Illawarra Reserve on 40 metres. At one stage it was so slow going that I feared not getting 10 contacts but after 40 minutes I made enough to activate that park. After my failed attempt to activate the Lady Somers Bridge Reserve and with a now mud-covered car, I headed to Moyston and found the Moyston Floral Reserve. Only issue was that I had to cart the gear about 200 metres from the car to a pleasant, cleared area. At Moyston I confirmed 38 contacts, with 14 of those on 20 metres, using my JPC-12 vertical, mounted into the ground. It's proving to be an amazing antenna and extremely easy to set up.

On 40 I used my lightweight portable dipole on top of, well... sort of, my wobbly squid pole. Twice while trying to erect it, the pole collapsed into itself! Bugger!

Insulating tape at each section solved that problem and up it went, albeit at an interesting angle once I ran the dipole legs out.

With the afternoon getting quite late and 20 metres getting more and more hammered with QRM I decided to pack up.

Mal has since suggested that I wrap the coax around the squid pole. I don't know why I didn't think of that.

Most of my contacts on 40 were VK3s, 2s and 5s. On 20 I managed a number of VK4s, one VK3, three ZLs, two Italian stations and one European Russia.

My gear was a Yaesu FT-897D, LDG-100 light weight auto-tuner (which I didn't need) and 35 amp-hour lithium battery. Mostly I used 10, sometimes 15 watts but upped it to 50 for the Russian Amateur. It's not the lightest setup but it's what I have available. In fact, it's what I carted up Mount William last year.

All in all, it was a good day out, pleasant weather and good contacts. I've mastered submitting logs and they went in shortly after arriving home. Now all I have to do is drive to the car wash in town and de-mud it.



DOWNEAST'R

DENISE PAINE



A Great Reason Be At The BARG HAMVENTION 2024

If you have even a passing interest in amateur radio microwave communications, the static display of a variety of microwave equipment at the BARG Hamvention is for you.



Aimed to help encourage newcomers to the microwave bands and show the more established operators the latest gear available.

This will enable those interested in having a close up look at different options or approaches of microwave equipment to help build up the numbers for VHF/UHF Field Day weekends as well as the monthly Microwave Activity Days / afternoons.



Hiro from Icom Australia will be bringing some equipment along to display. Amateur Radio Victoria will also be coming along for those wishing to ask about becoming a member and supporting the work that goes on to keep the large number of repeaters functioning.

The display will give you a chance to find out what its all about and how to enter this interesting area of amateur radio.

Contributor Nik VK3BA



CUBESATS, Where did they come from?



As of December 2023, more than 2,300 CubeSats have been launched since 2003.

CubeSat mission durations and orbital life vary but are anticipated to last at least 90 days.

CubeSats are a class of satellite that have a standard size and form factor. The standard CubeSat size uses a “one unit” or “1U” measuring 10x10x10 cm and is extendable to larger sizes; 1.5, 2, 3, 6, and even 12U.



A lecturer at Stanford University, Bob Twiggs was becoming frustrated that his graduate students started satellite-building projects but never finished them.

Bob thought, “What if we made [the satellite] a cube and put solar cells on all sides so no matter which way it rotated, it was going to get charged?” The smaller size meant that they could possibly be completed during the course.

He began to design such a cube, originally using a 4 x 4 x 4-inch transparent box from a local shop. This was about 1999 when NASA had an embarrassing metric/imperial mix-up cause a mission failure.

Bob decided that his students would learn the metric system and the cube became 10 x 10 x 10 cm.

Along with co-inventor Jordi Puig-Suari, an aerospace engineering professor at California Polytechnic State University, they invented what is now known as the CubeSat standard.

The first batch of six CubeSats launched on a Russian Rokot, an intercontinental ballistic missile converted into a space launch vehicle.

NASA after some reluctance launched the space agency’s first CubeSat in 2006, the GeneSat-1, a microgravity experiment for biological cultures.



An entire industry has sprung up around the 1000 cm³ form factor, with multibillion-dollar companies embracing the satellite type as well as space agencies such as NASA, which now use the small satellite for complex deep space missions.

A deployment system was developed for the International Space Station and now there are CubeSats being released from ISS.

There have been many Australian CubeSats put into orbit, mostly from university faculties, teaching aerospace technologies.
<https://spaceaustralia.com/news/wa-launches-first-spacecraft-orbit>



The benefits of using CubeSats

Pros

- Fast: can be built within two years
- Cost: far less expensive than large satellites
- Technology: simple, standard parts available off-the-shelf
- Design: simple design for short mission; no need to use thermal blankets
- Space debris: none – they burn up in the atmosphere upon re-entry

Cons

- Scope: limited due to reduced capacity to carry scientific instruments
- Mission duration: most of them are operational for a period of 3 to 12 months

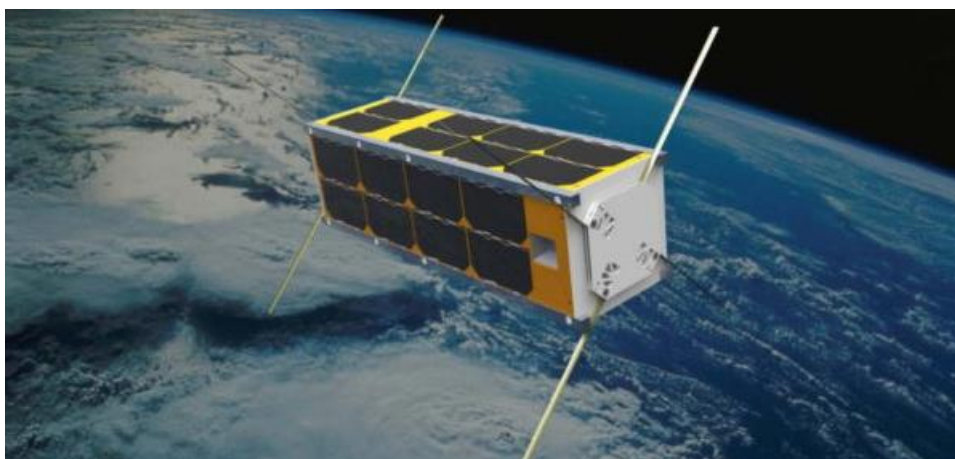
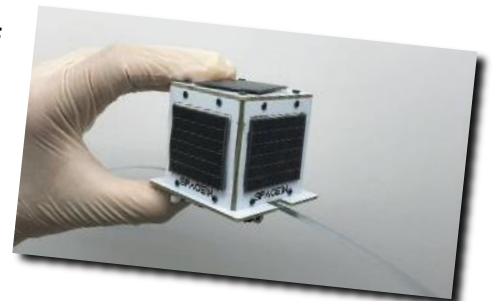
Bob was also instrumental in the development of even smaller satellites called PocketQubes with 5 x 5 x 5 cm enclosures.

CubeSat access to space is becoming more affordable. SpaceX charges \$275,000 for 50 kg and NanoRacks costs \$90,000 per 1 U CubeSat.

https://en.wikipedia.org/wiki/List_of_CubeSats

<https://aviationweek.com/aerospace/commercial-space/use-tiny-pocketqubes-new-standard-satellite-takes>

<https://www.asc-csa.gc.ca/eng/satellites/cubesat/what-is-a-cubesat.asp>



QRP Satellite Aloft

From AMSAT Bulletin <https://www.amsat.org/ans-358-amsat-news-service-weekly-bulletins/>

HADES-D Designated SO-121, Active For General Use

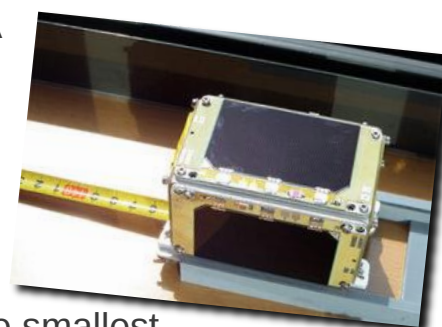
HADES-D satellite has been commissioned. After a trial period in which its behaviour has been tested at the radioelectric, systems, and energy performance levels, the FM repeater is left active for general use.

At the request of AMSAT-EA, AMSAT has designated HADES-D as Spain-OSCAR 121 (SO-121). AMSAT congratulates AMSAT-EA, thanks them for their contribution to the amateur satellite community and wishes them continued success on this and future projects.

The repeater works with FM/FSK (MSK144 has been tested too) with an uplink frequency of 145,875 MHz and a downlink frequency of 436,663.5 MHz (a bit lower than the 436.666 MHz expected). We have been able to verify that the modulation is more appropriate by narrowing the bandwidth, so it is recommended to use NFM in those devices allowing it.

AMSAT-EA is drafting a use and operation manual, which will be published shortly and which will indicate in detail some of the characteristics of the satellite and its working modes. Although it is not definitive, Amsat-EA is considering some special operating options such as reserving a day of the week exclusively for digital communications following the example we know with the AO-92.

Finally, please, remember that, as far as we know, HADES-D is the first satellite with FM repeater service mounted on a PocketQube platform. This standard is the smallest in terms of normalized satellite sizes. HADES-D size is 8x5x5 cm. Its panel surface and battery size are much smaller than the rest of the satellite repeaters in use, so HADES-D is not comparable to most of them either in radiated power or signal strength. HADES-D should be considered a QRP satellite.

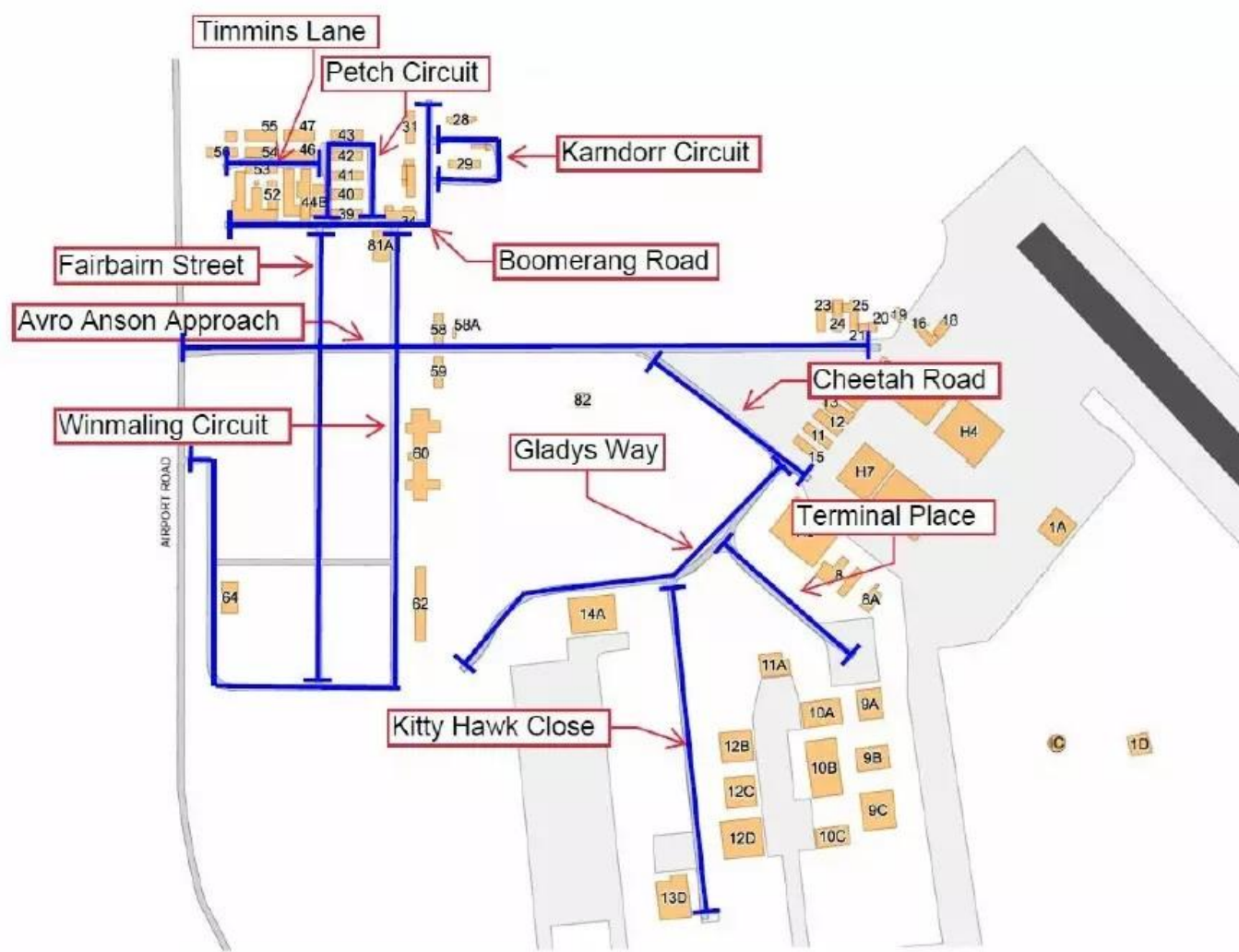


[ANS thanks Félix Páez, EA4GQS, of the HADES-D team, and Drew Glasbrenner, KO4MA, AMSAT Vice President – Operations and OSCAR Number Administrator, for the above information]

AS I twirled the knob of my radio set, I passed through a plethora of hypo-thyroid disc jockeys who conveyor-belted their way through the Top 30, leaving an indelible blank on my mind, and I suddenly realised that without ABC radio, Australians would be totally ignorant of the existence of classical music and literature via the airwaves.

SPIKE MILLIGAN Woy Woy, NSW 18/11/77

Our New Street Names at the Airport



The Ballarat Amateur Radio Group inc, new address is from 15th December 2023.

25 Boomerang Road. MITCHELL PARK, 3355

The Commonwealth Aircraft Corporation Boomerang was a single seat fighter/army cooperation aircraft powered by a 1,200 HP Pratt & Whitney R-1830-S3C4G Twin Wasp 14-cylinder twin row radial engine.



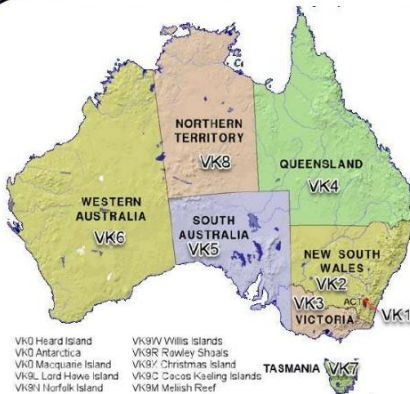
Licence: A = Advanced, S = Standard, F = Foundation

VK Amateur Radio Frequencies

Amateur Use: P = Primary, S = Secondary

Band	Frequency	Lic	Band	Frequency	Lic	Band	Frequency	Lic
2200 metre*	S 135.7 KHz—137.8 KHz	A	6 metres*	S 50.000 MHz—52.000 MHz	A,S	6 Millimetres	P 47.000 GHz - 47.200 GHz	A
630 metre*	S 472.0 KHz—479.0 KHz	A	6 metres*	P 52.000 MHz—54.000 MHz	A,S	4 Millimetres	S 76.000 GHz - 77.500 GHz	A
160 metre	P 1.800 MHz—1.875 MHz	A	2 metres	P 144.000 MHz - 148.000 MHz	A,S,F	4 Millimetres	P 77.500 GHz - 78.000 GHz	A
80 metre	P 3.500 MHz—3.700 MHz	A,S,F	70 centimetres	S 430.00 MHz - 450.000 MHz	A,S,F	4 Millimetres	S 78.000 GHz - 81.000 GHz	A
80 metre*	S 3.776 MHz—3.800 MHz	A	23 centimetres	S 1240.00 MHz—1300.00 MHz	A	2.5 Millimetres	S 122.250 GHz - 123.000 GHz	A
40 metre	P 7.000 MHz—7.100 MHz	A,S,F	13 centimetre*	S 2300.00 MHz - 2302.00MHz	A	2 Millimetres	P 134.000 GHz - 136.000 GHz	A
40 metre	S 7.100 MHz—7.300 MHz	A,S,F	13 centimetre*	S 2400.00 MHz—2450.00 MHz	A,S	2 Millimetres	S 136.000 GHz - 141.00GHz	A
30 metre	S 10.100 MHz—10.150 MHz	A	9 Centimetres	S 3.300 GHz - 3.400 GHz	A	1.25 Millimetres	S 241.000 GHz - 248.000 GHz	A
20 metre	P 14.000 MHz—14.350 MHz	A,S	9 Centimetres*	* 3.400 GHz—3.600GHz (Restricted)	A	1.25 Millimetres	P 248.000GHz - 250.000 GHz	A
17 metre	P 18.068 MHz—18.168 MHz	A	6 Centimetres*	S 5.650 GHz—5.850 GHz	A,S			
15 metre	P 21.000 MHz—21.450 MHz	A,S,F	3 Centimetres	S 10.000 GHz - 10.500 GHz	A			
12 metres	P 24.890 MHz - 24.990 MHz	A	1.25 Centimetres	P 24.000 GHz - 24.050 GHz	A			
10 metres	P 28.000 MHz—29.700 MHz	A,S,F	1.25 Centimetres	S 24.050 GHz - 24.250 GHz	A			

* Denotes - Conditions or Restrictions apply (and/or Satellite use) and you should check the Amateur LCD for further information before using.



Australian 2m & 70cm Repeater Offsets

VHF: -600kHz below 147.000 MHz
+600kHz above 147.000 MHz
UHF: -5.0 MHz

2 Metre and 70 Centimetre Band Plan (shortform)

2 Metre (VHF) - Amateur Radio is the Primary Service

144.100 MHz Calling frequency: national primary CW/SSB
144.200 MHz Calling frequency: national secondary CW/SSB
144.400 MHz - 144.600 MHz Beacons
144.700 MHz - 144.900 MHz DIGITAL SIMPLEX (12.5 or 25 kHz spacing)
145.075 MHz - 145.400 MHz FM AND DIGITAL SIMPLEX (25 kHz channels)
145.175 MHz National APRS frequency
145.200 MHz National WICEN packet frequency
145.800 MHz - 146.000MHz AMATEUR SATELLITES
146.425 MHz - 146.600MHz FM SIMPLEX (25 kHz channels)
146.500 MHz National voice calling frequency (FM SIMPLEX)
147.400MHz - 147.600MHz FM AND DIGITAL SIMPLEX (25 kHz channels)

70 Centimetre (UHF) - Amateur Radio is the Secondary Service

432.000 MHz—432.100MHz EME
432.100 MHz Calling frequency: national primary CW/SSB
432.200 MHz Calling frequency: national secondary CW/SSB
432.400 MHz - 432.600 MHz Beacons
443.000MHz - 450.000 MHz ATV
435.000 MHz - 438.000 MHz AMATEUR SATELLITES
438.950 MHz - 439.775MHz FM AND DIGITAL SIMPLEX (12.5 or 25 kHz spacing)
438.950 WICEN
439.000 MHz National FM voice calling Frequency
439.200 MHz Digital Voice calling Frequency

Phonetic Alphabet

A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliett
K	Kilo
L	Lima
M	Mike
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-Ray
Y	Yankee
Z	Zulu

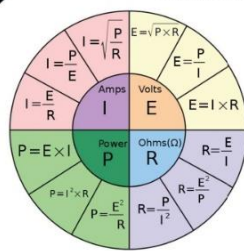
Q-Codes (informal)

QRA	Name
QRB	Distance
QRG	Frequency
QRK	Intelligibility
QRL	Busy
QRM	Interference
QRN	Noise
QRO	High power
QRP	Low power
QRQ	High speed CW
QRS	Low speed CW
QRSS	Very low speed CW
QRT	Shut down the station
QRV	Ready
QRX	Stand by
QRZ?	Who is calling me?
QSB	Fading
QSD	Defective keying
QSK	Break in
QSL	Confirmation or card to confirm contact
QSO	Radio contact
QSY	Change frequency
QTC	Message
QTH	Location
QTR	Time

DMR Information (DMR - MARC)

General Channel Information - <https://vkdmr.com/talk-groups/>
VKDMR IPSC2 Repeater Dashboard - <http://rpt.vkdmr.com/ipsc/>
VKDMR IPSC2 Hotspot Dashboard - <http://hot.vkdmr.com/ipsc/>

Commonly Used Information & Formulas



1/2 Wave Centre fed Dipole Antenna formulas

approx. total length in metres = $(\lambda \times 0.25) \times \text{velocity factor of } 0.951$ (Copper wire)

1/4 Wave Vertical Groundplane Antenna Formula's

Radiating Element Length (Metres) = $(\lambda \times 0.25) \times \text{velocity factor of } 0.951$ (Copper wire)

Radial Length (Metres) = $(\lambda \times 0.25) \times \text{velocity factor of } 0.951$ (Copper wire)

Factors such as height above ground (Dipole), wire diameter, feedline, conductivity of the ground and nearby structures need to be taken into account, so always add some extra length to trim for SWR.

Trim or Lengthen?

SWR dip Frequency is lower than you want - trim your antenna - careful not to trim too much

SWR dip Frequency is higher than you want - Get the soldering iron out and lengthen it

Common Wire Sizes

AWG	Diameter
10	2.5882mm
11	2.3048mm
12	2.0525mm
13	1.8278mm
14	1.6277mm
15	1.4495mm
16	1.2908mm
17	1.1495mm
18	1.0237mm
19	0.9116mm
20	0.8118mm
21	0.7229mm
22	0.6438mm
23	0.5708mm
24	0.5026mm
25	0.4419mm
26	0.3896mm
27	0.3426mm
28	0.3003mm
29	0.2619mm
30	0.2262mm

VKHAMRADIO.COM
Everything About Australian Ham Radio and more

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Attributions: Ohms / Power Chart - Matt Rider - [Creative Commons Attribution-Share Alike 3.0 Unported](https://creativecommons.org/licenses/by-sa/4.0/) - Commons.wikimedia.org
Public Domain: Australia Map—Public Domain—<https://ian.mackay.net/pat/about.html>
Version: VKHamradio.com A3 Wallchart V1.7—Nov 2023—Reduced DMR section / Add basic Antenna formulas

https://vkhamradio.com/vk-ham-radio-wallchart/?fbclid=IwAR2dl5ocVJXZMkd4We1yuWVZoQ01Wt_JGZ1bS0R3T9RjvfVvKlsTlAwTLlck

60th Anniversary of the Press Button Phone

Contributor Tom, VK3DMK

Following the WW2, US telecom companies decided to use of a string of seven numbers for telephone codes, apart from people worried how they'd be able to remember all seven of the digits, there was the practicalities of how long it would take to dial them with a rotary phone.

As early as 1941, there were experiments being conducted on tone dialing and press button phones by Western Electric, using mechanically activated reeds to produce two tones for each of the ten digits. By the end of the 1940's a crossbar switching system had been tested in Pennsylvania, but due to reliability problems was not integrated into the existing phone network.

On 18 November 1963, after approximately three years of customer testing, the Bell System in the United States officially introduced dual-tone multi-frequency (DTMF) to the market.

An official use was by John. F. Kennedy on 22 April 1963, he started the countdown for the opening of the 1964 World's Fair by keying "1964" on a touch-tone telephone in the Oval Office, starting "a contraption which will count off the seconds until the opening.

The layout of the keyboard was decided by John Karlin from Bell Labs, some designers wanted the 1, 2, 3 buttons along the bottom row, but the now layout of 1,2, 3 buttons across the top row was finally accepted as the standard when he reasoned that by having 1-2-3 on the top row, people could better cope.



NEW EXPERIMENT IN TELEPHONY

It could speed up "dialing." Bell Laboratories people created it—and now it's being tested.

The telephone you see above embodies an important new concept. It "dials" by means of push buttons—promotes more convenient telephoning. Bell System engineers are currently testing it for public reaction. Bell Telephone Laboratories developed it.

The Laboratories' invention of the transistor makes it possible. For the transistor permits a new kind of calling signal generator, mounted within the instrument.

To insure ease of operation, psychologists studied human reactions to various finger pressures and sizes and arrangements of buttons. All factors affecting speed and accuracy were thoroughly evaluated. Electrical and mechanical engineers brought together the human and physical factors, created a practical piece of apparatus. Industrial designers worked out the functional shape.

January, 1963

The new instrument sends a calling signal quite different from that of your present telephone. This poses a problem. Complex automatic switching must be changed to handle the new signals as well as the old ones. Switching engineers must devise ways to make this change in thousands of central offices—economically.

Most of the challenges have been met. Final judgment on this new concept depends on the outcome of field tests. Meanwhile, Bell Laboratories continues in its task of originating and developing devices to improve your Bell System telephone service.

BELL TELEPHONE LABORATORIES
WORLD CENTER OF COMMUNICATIONS RESEARCH AND DEVELOPMENT

https://en.wikipedia.org/wiki/Push-button_telephone#:~:text=On%20November%2018%2C%201963%2C%20the,in%20multiple%20locations%2C%20including%20Greensburg.
<https://www.officephoneshop.com/the-push-button-phone-is-50-years-old/>



AMATEUR RADIO AUSTRALIA DAY CONTEST 2024

Got plans for Australia Day? You may want to change them and test your shortwave operating skills!



Contest Introduction:

New distance-based rules and FT8/4 for 2023+

This contest is to encourage Amateur Radio promotional Activity around the world and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the Australia Day Public Holiday that being the 26th of January.

Aim Of The Contest:

Amateurs in VK will endeavour to contact other amateurs around the world.

Some VK operators will be using the AX prefix to celebrate Australia day, as it's wanted by many amateurs around the world.

Scoring is distance based and calculated using 4-character grid squares.

For all the needed information and rules;

<https://www.wia.org.au/members/contests/australiaday/>

Tower and HF Yagi Available Through BARG inc.



There is a tower and HF Yagi available for free for anyone who wants to go out and remove it. Attached photo will give some size and there is another section to it that is not installed.

You will need to remove and transport it yourself.

To view and arrange to take out and pick up contact Ben VK3NRD, BARG President at

barg@barg.org.au

for a contact phone number.

If it is not picked up at some stage soon it will go for scrap.

"RK ZAGREB 100" AWARD

In the spring of 1924, enraptured by the technical possibilities of radio, gifted enthusiasts and radio lovers encouraged the establishment of the Radio Friends Club.

At the constituent session, held on March 29, 1924, in the Chamber of Commerce, Radioklub Zagreb ~ RKZ for short, the first radio club in this part of Europe, was founded. The Rules were accepted, and the Committee was elected, which included prominent people from Zagreb.

https://www.rkz.hr/pages/award_zagreb100_cro.htm

Radio Club Zagreb 9A1ADE, one of the oldest clubs in Europe, founded in 1924, celebrating its 100th anniversary, issues:
"RK ZAGREB 100 AWARD"



1. The diploma can be won by all licensed and registered (SWL) radio amateurs, who maintain a connection with the jubilee call signs 9A100RKZ and 9A100Z . There are no restrictions on frequencies and types of work. Relationships held between January 1 and December 31, 2024 are recognized for the diploma.
2. Connections made through repeaters are not recognized for this degree.
3. The request for the issuance of a diploma should contain an extract from the diary with the usual data on the relationships held. QSL cards do not need to be sent.
4. Requests should be sent no later than January 31, 2025. year to the e-mail address:
5. zg3005vi@gmail.com
6. Subject of the e-mail message: ZAGREB100
7. The diploma is in * pdf format, free of charge and will be sent to the applicant's e-mail address.
8. Manager for the diploma is Vladimir Ivković, 9A5MP.

WOULD YOU LIKE TO CONTRIBUTE TO OUR MONTHLY NEWSLETTER?

IF YOU THINK YOU CAN WRITE OR CONTRIBUTE SOME
PICTURES OF CLUB OR YOUR AMATEUR RADIO
ACTIVITIES

FEEL FREE TO CONTACT ME.

73 TOM VK3DMK.

tomvk3dmk@gmail.com



Are you interested in becoming an amateur radio
operator?

If you are interested in WIA membership, the Amateur
Radio Magazine and what is going on in the amateur
radio world, then check out the site at;

<https://www.wia.org.au/>

If Strike Isn't Settled Quickly, It May Last Awhile

Cold Wave Linked to Temperatures

New Study of Obesity Looks for Larger Test Group

After Tea Break, Staff Should Empty The Teapot and Stand UPSIDE DOWN On
The Draining Board.

Magazine Reviews

QST January 2024 Review

Well, the start of a new year looking towards some great reading ahead.



P9 The Second Century.: David NA2AA the CEO of the ARRL reflects on the genealogy of Amateur Radio and his memory was of his father [also an amateur] encouraging him to learn about radio by listening first to stations from all fifty states before getting his Novice licence and then moving on to constructing his first kitset transmitter on 80/40 metres. He defends the argument that amateur radio has been “greyed down” because the use of internet and smartphones to interpose between the rising up younger person has slowed or even stopped the newcomer from having the desire or drive to learn more about the theory behind how, why something works. He refers to STEM in schools now and points out that this really existed in early days but wasn’t seen as part of any curriculum in schools but was more seen by the challenge of an individual “wanting” to know something about How and Why something worked. The desire to learn and want to understand may have been diverted in the process. He is encouraging the ARRL and by implication ALL clubs to embrace STEM and any other processes to gain younger members once again who have the desire and drive to want to be part of this great hobby of ours and understand the How and Why.



P13 Member spotlight on Sunita KD5PLB who spent 322 days in space and is the second most cumulative spacewalk time by a female. Inspired by TOP GUN she enrolled in the Naval Academy and flying helicopters also. After meeting John Glenn, she became an astronaut and also helped to build the ISS. Now preparing for her third journey on the ISS she loves encouraging young people to call and talk using the onboard ham shack. A unique claim to fame was her being the first to run the “Boston Marathon in 2007” while onboard ISS and supported by her crew at that time. Still running she is currently assigned at NASA as Boeings Crew Flight Test mission.



P24 Correspondence. Covers all types of Brick Bats and also praise for different things. Sometimes a good technical discussion can be found from just correspondence.

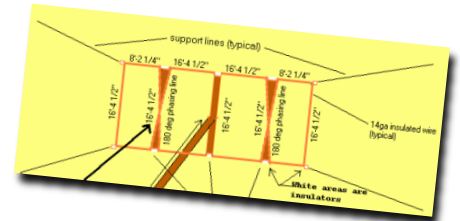
P30 An Easy, Inexpensive Voice Keyer. Built into a 100x60x25mm plastic box this project allows you to record a 10Sec message and to control the station rig for replaying. The voice record module is an ISD 1820 and with a 3.6V battery and couple of push button switches and a miniature loudspeaker this would make a very good weekend project.



P32 KE1R provides an overview of the structure and intricacies of FT8. KE1R breaks down the signal of any data stream and shows how it can be displayed in a waterfall form and how to produce this in tone patterns. www.arrl.org/qst-in-depth and also the FT8 Operating guide www.sp2pby.pl/pdf/ft8_hinson_tips_for_hf_dxers.pdf

P35 The Shorter STERBA. Make a high-performance antenna for 10 Metres.

Developed by Bell Telephone back in the 1930's as part of their SW radio relay of their telephone services. Rather large on real estate they were not every amateurs ideal antenna although the curtain was excellent gain with a narrow azimuth signal. The Sterba Curtain just consists of a number of half wave dipoles connected in phase to each other and has one dipole separated vertically by a half wave spacing and then another half wave dipole side by them. They have to be fed in phase and this is achieved using a transmission line between each paired dipole. The antenna is fed at a corner of the whole assembly using a 9:1 BALUN and some open 400wire ladder line for the phasing pairs. For ten metres the design frequency chosen was 28.4 gives a half wave length of 16' 6" or more Easily for us 5.0 metres. Due to the authors available space he "twiddled" the original design of Sterba's and also moved his feed point to the bottom of the curtain array on the open wire line.



An original Sterba curtain array was given in QST October 1991 by K1TN.

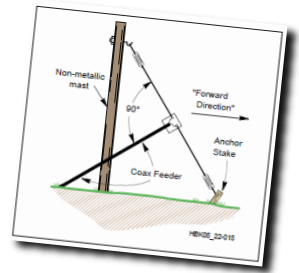
The more half wave sections added in allow an increase in gain and also narrow the horizontal beam width. Using comp modelling the author change parameters to suit his available space and calculated a gain of 16dBi at 28.4MHz and a BW of 25.5 deg at the -3dB points. The antenna had a elevation angle of 17 degrees. Extra bonus was the antenna when used on the 12M band at 24.95MHz the lobes appear more open and rounded out with a gain of 13.6dBi and elevation of 19 deg. So, with 10 and 6 metres showing some activity who is going to try a modified size Sterba in their back yard now.

P40 Product review: Another dual band FM box with C4FM digital as well the Yaesu FTM500DR dual bander is given the run down in ARRL labs. Has 50W out on both bands and will allow continuous tuning to 999MHz. And for more summary see the ARRL site.



P45 Review of four Lithium battery Portable power stations. They supply 110V ac [but may be link selected for 240V. The supply between 250 – 3KW and 12V DC and also supply USB [5V] outputs. Compact devices in the US\$500 mark a great way to power up your site area.

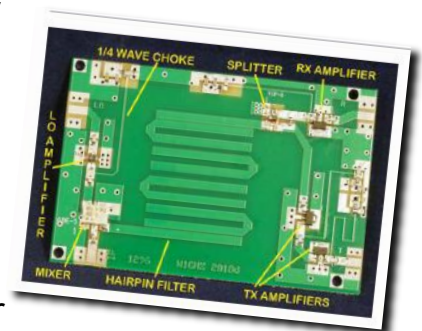
P52 Ask Dave. A NUMBER OF QUESTIONS CONCERN ANTENNAS TODAY. Rearrange a dipole for more gain, how about using the flag pole to disguise the antenna wire. Which wire is best for a wire antenna because the wire thickness is varied. Can I run a wire antenna over a tin roofed building/shed without any problems. Finally Installing a vertical ant like a Diamond X50A dual or Winter protection.



P54 HINTS & KINKS. Use a traffic cone to cover ground radial couplings at base of a vertical pole.

Calibrate a 50A meter www.youtube.com/watch?meter=without+need+to+purchase+an+expensive+lab+standard+see+www.youtube.com/v=3FgKyRhIKSU&t=227s

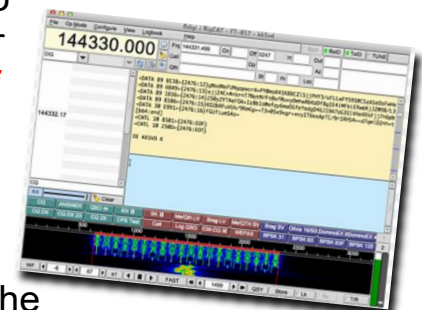
P56 Micro wavelengths. Looking at Transverters. By Paul Wade W1GHZ and analysing the block diagram of a typical device using a 144.1 MHz input IF and a local oscillator of [typically] 1152MHz which translates to a band frequency of 1296 MHz or use an input IF of 432 with a oscillator of 9936MHz and output at 10368MHz in the 3cm band. He then discusses homebrewing own board and the need for filtration of undesired harmonics along the way. www.w1ghz.org



Most UHF operators will know of Paul but for others this short article will lead them to his home page and there is hours of reading and lists of the many projects he produced. Well worth marking up now.! Breaking down the sections of a UHF and above transverter he guides the reader through each of the major sections and simple starting explanation of their uses. Things like Pipe Caps, simple change over RF relays, sequencers, and input attenuators on the IF channel. Here he mentions the newest IC905 radio and also discusses the need to limit input powers to your Transverter IF to just 1mW or less and not feed a transmitters full 50W into the mixer. ??

Devastating conclusions.

P58 Tech Correspondence. Do you know how to calibrate your VFO to a good standard like WWV or WWVH.? Barry K3EUI uses a program called *fldigi* and a sound card. This is a free program. If difficult to copy WWV then try 3.330 or 7.850 which is the Canadian National Research Council's station. CHU and sends similar signals but their tone for blips is actually 1000Hz not the 500 or 600 Hz of the WWV stations. Calibration is still the same as detailed in article.



Interested in using some open wire lines for an antenna? See the comments by Dennis K0GRM and read the early QST of July 2023 by Mark AI4BJ "Build a 80 thru 10M portable Doublet antenna". This article uses 6" plastic spacers. ANOTHER IDEA I have seen and used myself uses the round black plastic garden water riser tubes from the big green shed. You can get 3 or 4 cut from

each pipe and use UV resistant cable ties threaded down the tube and the heads are at each end of the tube and with the wire passing thru the two and the pipes end thread up the ties and pull tight. Because of the rigidity of the tube, you may stretch the spacing out further if you wish or can close the spacing for more guarantee of a uniform feeder without any twists and turns.

- P60 VHF Roving. Rover stations are ones that “rove” obviously but are heard of frequently during VHF and UHF contests and weekend activities because of the shorter range of propagation that occurs in VHF and above compared to HF communications. There are now contest categories for ROVE stations and they attempt to still work as many points they can from one location but then go portable to another location and set up and call from some new location. as the MAIDENHEAD grid square system is used and scoring uses a multiplier based upon the number of grids attempted a rover station has a good advantage.



Great photo on page 61 of a rover station with ALL the antennas hanging off a SUV vehicle. It shows coverage of 50MHz thru to 3.4GHz with a rotator all mounted from the roof top ski bars. This conglomeration has taken 7 years to refine.

- P62 How to Become a POTA Hunter. Harold Kramer, WJ1B. POTA is quickly becoming one of the best-known amateur operating programs. While not affiliated with ARRL, POTA is an outgrowth of ARRL's National Parks on the Air, which launched in 2016. POTA's success is partially due to how easy it is for any ham to participate.



- P65 CW Academy journey. By Gerard PA2G. Looks at an amateur with dyslexia and how he achieved his goals with the help of a series of CW



courses. Starting in Oct 2019 just before the COVID hit he fell behind because of the loss of direct contact with people. After reading article <https://cwops.org> he was motivated again to learn with help from G3WZD and using ZOOM and at least 60mins per day practice using <https://morsecode.world/international/trainer/.html> Further assistance from a weekly slow morse session by K1USN club on <http://k1usn.com/sst.html> and speeds of 12 to 20 wpm.

By the end of Oct 2021 [two years] Gerard was on 25-28wpm which wasn't too bad for someone professing a problem with Dyslexia. He is still challenge himself to “improve” Well done that man.

If YOU are keen to beat the CW hurdle and would like to know some more then search out this article between pages 62 and 67 as there are many more internet references that you may care to look for.

P72 Public Service. Recent Hurricane IDALIA in Florida saw many amateurs deploying to assist as various emergency supporters. But one thing we can never train for and use in different exercises is what happens when the helpers need help themselves. Are we prepared to take casualties to ourselves and our loaned equipment's, our cars and trucks, antenna towers and what about our personal safety when hit by such disastrous conditions. Rick K1KC was one of those emergency responders who got caught out and was unable to fulfill his trained roll. Are we suitably trained here, and are we covered for redundancy amongst our teams and especially our leadership. ?



P74 In the US a new amateur extra question to appear from the POOL after 1 July.

P82 Enhancing Club meetings by using Hybrid meeting capabilities. Following on after COVID many clubs found that using the internet of a local repeater or the Internet was needed to capture the membership to conduct the regular business of the club. Read here about how one club, Willamette DX Valley club of Oregon has handled their needs. This method may allow different groups to follow the same line but also consider providing a service to distance or remote members and use a video feed in the system as well.



P84 Ham Media playlist. K7AGE a no-nonsense approach to helping hams. STEM is already taken off in this country, but amateurs have been using U-tube and variations for long time to do their own thing and produce tons of interesting training packages that may only air for 10 mins but could convey the equivalent of many hours of technical detail that makes a great training package.



Randy Has a number of packages here about activating a POTA station and erection of towers and antennas on site. Try this one www.youtube.com/@K7AGE

P86 CLIPPERTON 2024 TX5S.

How's DX. FO/C Clipperton Island again. The history is given of this uninhabited [private owned] atoll First listed in 1957 on the DXCC roll it wasn't activated until April 1954 on the second attempt to land by an ARRL party. The atoll is island about 1200km SW of Acapulco Mexico. Although announced in Nov 2023 QST the dates the team is going from 18 Jan-2



Feb 2024 and see www.intrepid-dx.com/temotu2023

The call will be TX5S and has about 16 members landing and another pilot stations on listening watch around the world. One of these is Luke Steele VK3HJ and he is in charge of the Oceania area. Bands are 1.8 thru to 50MHz and all zcw, SSB, RTTY and FT8. Interested in working them then read www.clip.pdxg.net/how-to-work=us

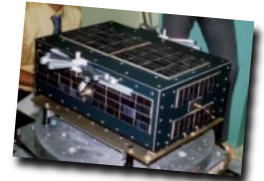
P88 World above 50 MHz October saw some rare 6M openings across the lower states of the US and late October 20/23 saw South Pacific and Indian ocean openings ZL3RC, ZL1RS and VK4WTN were worked on 6m into eastern seaboard of the USA.

Locally in VK there was a contact between VK6?? and VK3MATT on 2M SSb recent days. That may reach QST for the next issue. Some DX worked off the moon.



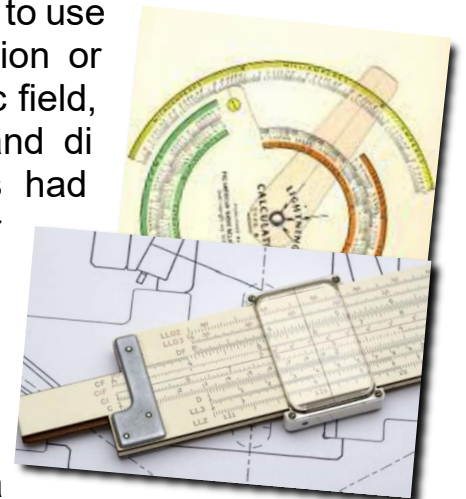
P93 Looks back at QST for Feb 1974.

Computerized search for birdies. Using the FORTRAN language possible birdie frequencies for four different formulas are required. Data is typed in on line to remote General Electric and a unit in and then results printed out.



Also, of interest back then was OSCAR 6 and two Australian amateurs managed to be awarded Satellite DX Certificates, they were VK5HI and VK7LZ.

P100 Lightning calculators of the 1930's. Initially we had to use a piece of paper, pencil and do some long division or multiplication working within the radio elecyteponoc field, some had a sharper brain and better memory and di "mental arithmetic" in their heads easily. Others had access to the well-worn Log tables [Logarithms for short.] and did multiplication and divisions on the paper The term Mantissa comes to mind somewhere there. Anyway, it was around 1932 that an engineer first developed a number of cardboard mounted scales that could be slid across one another known as lightning calculator or later as a Slide Rule.



The nick name was Slipstick was well known by students doing some heavy math's problems. There were other slide rules made to allow calculation of diff parameters, life expectations for a valve at rated filament volts and current with given anode volts applied. The resistor colour code and ways to read values of resistance by the sequence and colour of the bands. Easy back then because components were large and colour easier to see. (What was it then...Body colour, Band colour multiplier by the Dot colour and answer was in ohms.)

The ARRL got into these calculators back IN 1932 when W.P.Koeche designed a number of useful calculators for the amateur. Cost about \$0.50 each back then and now \$22 each. These calc were circular and pivoted around the central Rivette. Others in the series were the Wire data calc., Decibel calc, parallel resistance and series resistance calculations. There has been a book around for some time that has tables and Nomographs for various calculated values. Those more mature readers would remember the late Langford-Smith here in Australia and his excellent book that survived an annual reprint nearly every

year until the transistor started to influence our industry and then many of those calculations and charts became a bit dated.

P102 100, 50, and 25 years ago. Index of articles.

P126 QST Index of advertisers.

P127 Cont.

And there endeth the review. Cheers, Craig VK3KG.

Silicon Chip January 2024 Review

P14 Home Automation without the cloud. Discusses the setting up of a “smart home”, the hardware and software along with the various standards and protocols available. Shows the vast range of peripherals, back up systems and traps to avoid when installing.

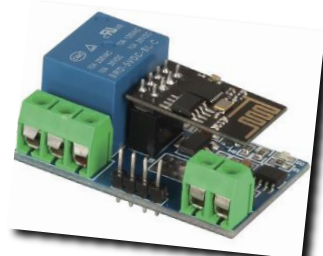


P28 Raspberry Pi Multi-Alarm Clock Radio. Uses a Pi 4 Model B and uses a 6 digit, 7 segment LED display, using internet connection to keep time and adjust to daylight saving, this design lets you feed audio from your stereo radio to output switched by the alarm function. All fits into a 200x155x65mm case, available from Jaycar and Altronics.



P41 Circuit Notebook. ePaper “analog” clock and calendar, using ESP32. ESP32-based semiconductor curve tracer.

P44 Wi-Fi Relay Modules. Looks at the relay modules sold by Jaycar and Altronics designed to have an ESP8266 controller fitted to make Wi-Fi controlled switches for your home automation project. Includes some demonstration software and firmware sources.



P52 USB to PS/2 keyboard adapter. For those that have the PS2 keyboards which are still purchasable, with mouse adapter. Using the Raspberry Pi Pico, a number of versions can be constructed to suit your requirements.

P64 Using Electronic Modules, 4-digit, 14 segment LED module. This module displays alpha-numeric characters via an I2C bus. Schematic of the display and how to connect the module to an Arduino UNO.



P68 Secure Remote Switch, Part 2. Describes the two versions and shows all the PCB, component, and enclosure information.

P74 Multi-Channel Volume Control, Part 2. Further construction notes and programming instructions to finalise this useful project.

P85 Serviceman's Log. Home-made guitar amplifier, Repairing an Icom 551-D transceiver, fixing a car head unit.

- P92 Restoring the QUAD 303, Power Amplifier and Preamplifier. 1967 amplifier system refurbishment shows schematics and internal construction with repairs and scope testing.



DIYODE January 2024 Review

- P8 New and Review. USB Lithium 25,000RPM Rotary Tool, ARDUINO FOR ARDUINIANS BOOK, 3D Printer Toolbox Kit - 7PCS, Work Bench 6 Way Surge Protected Individual Switch Power Board With 2 x USB TYPE-A and TYPE-C PD.
- P12 Small Scale Making with miniatures and electronics. An interesting article about using electronics and microcontrollers to animate and light your latest model diorama or railway layout. With the reduction in size of displays and LEDs it is now possible to add these components to scale models to give them some dynamic characteristics. From wirelessly charging some model vehicles, adding lights to buildings and street scapes, to small display screens in windows and roadside signs.
- P20 Lost & Found When Smartphones go down in the wilderness. A dedicated Arduino-based device with power saving functionality that provides location awareness. A versatile and cheap solution to location awareness which provides GPS information on the user's current location and their preset destination. It tracks the progress of the distance and direction to the destination, and with the help of an embedded compass, the user can adjust his orientation during their journey.
- P28 New Heights, Part 5: High Altitude Weather Balloon. An update from high school student, Nolan, about getting his STEM project into space. Continuing progress on programming and hardware.
- P30 Advanced Night Light. A versatile night light with auto-fading to a sleep brightness, different control options, wake-up option, and even battery backup! A complete article on construction and coding along with the many features that makes this lamp so unique. Programmed fading, different light sources and adjustable colour temperature with a remote control and motion sensor.



P61 Andotrope, An impressive replica of one of Gehn's holographic Imagers from the game Riven: The Sequel to Myst... Construction and programming details of this amazing prop. Mechanical as well as electronic construction methods.



P75 Let There Be Light Automating Plantation Shutters, Part 2. An ESP32-based remote controlled servo motor to open and close plantation shutters continues. Code and web server setup process is included.

Lo-Key No. 160 December 2023 Review

P2 Key Roles

P3 Lo-Tone. Terry VK2KTJ, Editors Notes

P4 The President's Notes. Trevor VK5ATQ, Possibility of magazine going paperless, Contest Co-Ordinator needed, Tx building and operating.

P6 Club News. New Members, 10-year, 20 Year and 30 Year Club, Lo-Key Index.

P8 Tresurers Report. Kevin VK5AKZ

P11 Max Brunger Awards for Best Technical Articles Rules.

P12 Max Brunger Awards for Best Technical Articles for 2023.

P13 QRP Hours Contest October 2023 Results

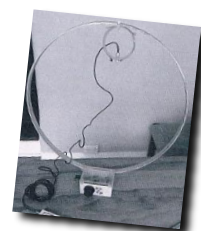
P14 The Craft Shop Magnetic Loop Antenna. John VK3DVW. For those craft minded this small loop works from 10M to 30M, based on an embroidery hoop and adhesive copper tape.

P20 The Century "Cent" (1 Watt) 80M CW Transmitter Mk 1. Nic VK7WW. Update and add-ons.

P24 Member Classifieds. Wanted Manual ATU/Aerial Coupler. Re-Homing G-QRP SPRAT issues.

P25 Chris-Crossword.

Back Page. Cent Transmitter, Trevor VK5ATO, 80M and 40M versions



Someone asked an old man: "Even after 70 years, you still call your wife – darling, honey, luv. What's the secret?" Old man: "I forgot her name and I'm scared to ask her."

COOL MESSAGE BY A WIFE: Dear Mother-in-law, don't teach me how to handle my children. I am living with one of yours and he needs a lot of improvement!

Back Copies of BARG inc. Newsletters

There are available on the BARG website scanned copies of old BARG Newsletters.
<https://www.barg.org.au/>

Colin VK3NCC with the copies supplied by Craig VK3KG has been scanning them and adding to the collection on the website.

Great job....

